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Mobile Money, Trade Credit and Economic Development' – insights from Kenya

Policy brief DFID/Tilburg University research: *'Enabling Innovation and Productivity Growth in Low Income Countries' (EIP-LIC)'.*
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Introduction

Both in development research and policy, there is an increasing interest in the use of mobile phone technology in Low Income Countries (LICs) and its impact on economic development and growth. Mobile money, as one manifestation of such technology, stimulates welfare of households and small business in many African countries and consequently increases the circulation of money in poorer communities. Increasing evidence shows that it also promotes savings in households via formal bank accounts. Individuals use mobile money for safety considerations, when travelling for instance. Moreover, mobile money technology provides additional advantages such as enabling easy access to market information, market prices, and enhancing market participation of farmers in remote communities.

One notable example of mobile money technology developed in Kenya is M-Pesa (M stands for mobile and pesa means money in Swahili). It is an SMS-based money transfer and storage tool. After its launch in 2007, M-Pesa rapidly became a popular way of making payments by households. Its involves less risk than informal cash payment methods, storing money in mobile form implies more security than holding cash, and using M-Pesa costs less than bank transfers. In 2011, 70 percent of adult population in Kenya had an M-Pesa account.

Actual growth numbers for the Kenyan economy suggest that the introduction of M-Pesa explains 14% of per-capita real income growth and 3.4% of the total factor productivity growth between 2006 and 2013, underscoring the quite large economic effect of mobile money technology. However, the use of M-Pesa by Kenyan businesses has been less slower compared to its use in Kenyan households.

Business surveys show that only one out of three SMEs in Kenya adopts and uses the M-Pesa technology to run its financial transactions. In the framework of a DFID-funded research project entitled *'Enabling Innovation and Productivity Growth in Low Income Countries (EIP-LIC)'*, a team of researchers from the Tilburg University, Cass Business School (City University London), Financial Sector Deepening (FSD) Kenya and Wageningen University carried out a study in 2013 analyzing the business use of M-Pesa in Kenya.

The underlying hypothesis of the study was that the availability of a mobile money technology such as M-Pesa can significantly contribute to firm and ultimately macroeconomic performance. The original working paper[1] is entitled *'Mobile Money, Trade Credit and Economic Development: Theory and Evidence (2014)'* by Thorsten Beck, Haki Pamuk, Ravindra Ramrattan and Burak Uras. This policy brief provides the research approach, main outcomes and policy implications of the paper.

Research approach and findings

The paper focuses on access to trade credit in particular since an increasing body of literature stresses the significant role of trade credit in economic development in low income countries. Among other lenders in financing credit-constrained firms, suppliers often provide a low-barrier channel to get access to credit, which makes trade credit prevalent in financially less developed countries where the majority has limited if any access to formal bank credit.
Unlike credit from official financial institutions, trade credit does not rely on formal collateral but on trust and reputation.

The research team wondered specifically whether the use of electronic money within their business helps entrepreneurs to access such trade credit. The research concentrated on the relationship of SMEs with their suppliers and measured the evolution of the M-Pesa technology as a payment method while making input purchases. The study analysed the role of theft too and its interaction with M-Pesa technology to explain the impact of M-Pesa on trade-credit connectedness in an economy and the resulting development consequences. Data from the World Bank's Enterprise Survey suggests that every year Kenyan manufacturing firms loose about 2 percent of product values due to theft - which equals to twice the world average - from sales to remote domestic markets. The team used both a dynamic general equilibrium model of entrepreneurial finance as well as empirical data from a novel SME survey from Kenya (FinAcess Business 2013). The details of the modelling and statistical analyses of the data are presented in the working paper.

' ... The key theoretical result from the model shows that access to trade credit generates demand to use M-Pesa as a payment method with suppliers and the use of M-Pesa in turn raises the value of a credit relationship and hence the willingness to apply for trade credit. Our work has important policy implications. The focus of the financial inclusion debate has been for a long time on credit and savings services. Our paper contributes to an expanding literature that shows not only the importance of effective payment services but also the promise that digital payment systems can hold. ... (Beck et al. (2015)

Key outcomes

The research team assessed a positive relation between the use of mobile money 'M-Pesa', as a payment method when purchasing inputs from suppliers, and the access to trade credit among SMEs. In fact, both the model and the empirical observation show this positive relationship. This empirical finding is consistent with causality going into either direction. Having a trade credit relationship with suppliers exhibits thus a strong positive relation with

[1] The working paper is accessible at the project's website (http://www.tilburguniversity.edu/dfid-innovation-and-growth) under 'publications and reports'.

enterprises' M-Pesa use as well. The researchers elaborate and explain in their working paper that the use of M-Pesa is causing less problems and frictions in transactions with suppliers. Consequently it is also lowering transaction costs and thus relevant for macroeconomic development in Kenya.

In an effort to verify the relationship, shutting down the M-Pesa technology within the research context also lowers the fraction of trade-credit relationships. The decline in trade credit relationships further suppresses the macroeconomic development to a significant extent. This quantitative result underlines the strong interaction between trade credit and M-Pesa.

The paper also shows that, in addition to enhancing information flows between economic agents, mobile phone technologies may also help foster economic and financial relationships between enterprises in developing countries. Moreover, theft raises the likelihood of default and constrains entrepreneurial trade-credit opportunities. A theoretical implication of the research is that the use of mobile money lowers the probability of theft and alleviates trade credit constraints, thereby stimulating entrepreneurial performance.

In sum, the key theoretical result from the model is that access to trade credit generates demand to use M-Pesa as a payment method with suppliers and the use of M-Pesa in turn raises the value of a credit relationship and hence the willingness to apply for trade credit.

Policy implications

There are several implications and reflections for policy from the research and working paper of Thorsten Beck, Haki Pamuk, Ravindra Ramrattan and Burak Uras.

Overall, given the limited use of mobile money in SMEs for their financial transactions, compared to households in Kenya, policy makers within governments, donors, NGOs policies and programs could explicitly focus on promoting the use of it within SMEs. The research suggests that particular policy impact could be achieved if the promotion of mobile money technology takes place in combination with trade credit promotion. Policies and programs promoting the use of mobile money within SMES could particularly focus on those firms that have already established trade relationships with a view to assure greater policy impact.

These policy recommendations are derived from the probability of using mobile money when purchasing goods being significantly higher for businesses with a trade credit relationship with their suppliers.

Regarding the economic significance of mobile money technology, the promotion of these more secure payment systems particularly allowing to improve on risky cash holdings and allow for more efficient transfers, can have economically meaningful implications for firm and macroeconomic development.

The research also provides input for the actual policy debate on financial inclusion relevant in many LICs in many developing countries. While for a long time there has been a focus on credit services for micro- and small entrepreneurs, over the past years the policy debate has broadened to other financial services and mechanisms.

The research shows the importance of trade credit, providing efficient payment services as a means to help firms expand their network and production. The research contributes to this debate, supported by an expanding literature, by underlining the importance of trade credit and the promise, which digital payment systems can hold. Mainstream literature has focused on the lack of access to credit services by enterprises as important growth constraint in developing countries, a policy implication of this research is the importance of effective payment services, through trade credit, for expanding economic and financial transactions in an economy.

Additional EIP-LIC insights

Bringing in additional insights from other DFID EIP-LIC research activities of Tilburg University, a qualitative exploration of research and policy issues concerning innovation in manufacturing SMEs in Kenya, a short study within the DFID project [2], confirms that mobile banking is not so much used for business transactions, although most company owners do see its advantages. In particular, mobile banking avoids staff having to carry cash, according to SME owners, which is usually the case after delivery of products by the company's drivers. Despite the fact that mobile money is more secure, in terms of theft, SME owners are still reluctant to use mobile banking for their business because of security weaknesses. There are still certain 'tricks' to wheedling money from account holders. The qualitative study includes a case of a company that does credit sales. At the same time, this company has several clients who are problematic and do not pay.

This policy brief is the product of a research project funded by the British Department for International Development (DFID) entitled 'Enabling Innovation and Productivity Growth in Low Income Countries' (EIP-LIC)/'. The project is implemented by Tilburg University (The Netherlands) and explores SME-level innovation in Low Income Countries (LICs) and factors that contribute to or limit its diffusion. Data collection and research collaborations take place in 10 African and Asian countries (Bangladesh, Ethiopia, Ghana, India, Indonesia, Kenya, Tanzania, South Africa, Uganda and Vietnam). The policy implications of research are presented in a series of policy briefs, targeted at a broad audience of policy makers within governments, business and development agencies with a view to quantifying research outcomes and promoting evidence-based policy making.

[2] The report downloadable at the project's website (http://www.tilburguniversity.edu/dfid-innovation-and-growth)